DOCUMENT RESUME

ED 068 402 SO 004 447

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TITLE Teacher-Pupil Interaction and Teacher Expectations for Pupil Achievement in Secondary Social Studies Classes.
PUB DATE Apr 72
NOTE 20p.; Paper presented at annual meeting, American Educational Research Association, Chicago, April, 1972

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Academic Achievement; Behavioral Science Research; *Classroom Communication; Classroom Research; Expectation; Interaction Process Analysis; Secondary School Teachers; *Social Studies; *Student Teacher Relationship; *Teacher Behavior

ABSTRACT

Identification of behavioral correlates of differential teacher expectations for pupil performance is made through a system of dyadic interaction analysis. Observable differences in secondary teachers' behavior with pupils from whom they expect high achievement and pupils from whom they expect low achievement are measured in seven social studies classrooms in schools which serve pupils from a wide range of socio-economic backgrounds and which do not employ ability grouping. Comparison of the findings of this study is made with those of previous studies conducted with experienced teachers in junior high math, reading, and social studies classes, in self-contained elementary classrooms, and in a laboratory study employing student-teachers and high school pupils. The outcomes of this study suggest not only further research to replicate, refine, and extend these findings, but also efforts to involve classroom teachers in identifying and modifying behavior patterns which might contribute to the fulfillment of their negative expectations. (Author/SHM)

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ED 068402

TEACHER-PUPIL INTERACTION AND TEACHER EXPECTATIONS FOR PUPIL ACHIEVEMENT IN SECONDARY SOCIAL STUDIES CLASSES*

"ROUGH" COPY

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SO 004 447

Implicit in the notion of an educational self-fulfilling prophecy, popularized by Rosenthal and Jacobs ~~in~~ (1968), is the suggestion that schools can improve pupil achievement by creating more favorable teacher expectations. However, the results of investigations of the hypothesis that teachers' expectations are self-fulfilling have been contradictory (Elashoff and Snow, 1971), in part because the experimental manipulations designed to establish favorable teacher expectations for some pupils have not always been effective (José and Cody, 1971). Modification of teachers' pre-existing expectations appears not easily accomplished. Given that teachers do hold differential expectations for their pupils' performance, these

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*Presented at the annual meeting of the American Educational Research Association, Chicago, Illinois, April 3-7, 1972.

attitudes must be communicated if they are to elicit reciprocal pupil behavior. Thus, if the expectancy hypothesis is valid, behavioral correlates of differential teacher expectations can be identified.

Only a few studies which attempted to manipulate teacher expectations obtained behavioral data which might help to explain how teachers communicate performance expectations. Beez (1967) found that teachers who had been led to expect better pupil performance tried to teach their pre-school pupils significantly more words than teachers who had been led to expect poorer performance. Rothbart, Dalfen, and Barrett (1971) found that, in a discussion setting with high school pupils, teachers spent more time attending to the pupils who had been described as having greater academic ability than those designated as lacking in intellectual potential. While José and Cody (1971) found no consistent change in teacher behavior following the introduction of expectancy information and no significant difference in teacher behavior toward experimental and control group pupils using an interaction analysis scale adapted from Bales, they reported that more than half of the elementary teachers indicated they did not expect more from the pupils in their classes who had been predicted to "bloom academically."

A series of studies in elementary and junior high classrooms, employing teachers' reported expectations for pupil achievement and a

system of dyadic interaction analysis, has identified several differences in teacher behavior with high and low expectation pupils (Good, 1970; Brophy, 1971). The present study employed a similar methodology to examine differential teacher beahvior with senior high school pupils. Specifically, this study was concerned with the following questions: What differences are observable in secondary teachers' behavior with pupils from whom they expect high achievement (differences in teacher behavior which might induce pupils to exhibit the anticipated behavior and consequently reinforce and fulfill teachers' expectations)? Do high school teachers communicate their expectations for pupil achievement in ways which are similar to those of the junior high and elementary teachers in previous studies?

Methods

Subjects

The investigation was conducted during the fall semester of 1970 in seven social studies classrooms of four high schools in a southwestern city: five classes in two primarily Anglo schools; one class in a mixed Chicano and Black school; and one class in an integrated, tri-ethnic school. The schools serve pupils from a wide range of socio-economic background and do not employ ability grouping in social studies.

The seven teachers were three male and four female student-teachers. Since both the student-teachers and their pupils were accustomed to frequent observation and note-taking by university supervisors, supervisors were able to code teacher-pupil interaction without disrupting classroom activities or arousing curiosity. Thus, while the shool administration was apprised of the nature and purpose of the study, the student-teachers were unaware that they were participating in a research project. Selection of the student-teachers and classes to be observed was based on scheduling convenience, resulting in two sophomore world history classes, one junior U.S. history section, and four senior civics classes.

Measure of Teacher Expectations

In meetings with student-teachers early in the semester, university supervisors emphasized the importance of learning pupils' names and getting to know them prior to beginning actual teaching. The student-teachers were asked to bring a list of the pupils in their classes to the second weekly seminar, and at that time the supervisors requested them to indicate their expectations for pupil achievement as follows:

> Now, rank the pupils in your class or classes in the order of expected achievement from highest, one, to lowest. It might be helpful to begin at the extremes and work toward the middle. Rank the pupils on the basis of your expectations for their achievement, i.e., how well you think they'll do in your class.

While some student-teachers expressed difficulty differentiating among their pupils, only one refused to do so, and none questioned the purpose of the task, apparently believing it to be a test of how well they had come to know their pupils. At the conclusion of the study, the rankings were discussed with the student-teachers.

Rankings obtained from the student-teachers were used as the measure of teacher expectations for pupil achievement. For each class, the four highest-ranking and four lowest-ranking pupils were identified for observation. Substitutes were also identified (the next two highest and lowest ranking pupils) and were observed when the originally designated pupils were absent. The two supervisor-coders were given a list of eight pupils and four alternates to observe and code in each class but were not informed which were highs or lows.

The distributions of high and low rankied pupils by ethnic group and sex are presented in Tables 1 and 2. There was no significant relationship between rank and ethnic groups ($X^2 = 2.74$, $p > .05$) or between rank and sex ($X^2 = 3.53$, $p > .05$).

Interaction Analysis System

The coding procedure employed was derived from Brophy and Good's (1969a) system of dyadic interaction analysis which was developed to analyze interaction between the teacher and individual pupils in

elementary classrooms. Categories were modified to increase their appropriateness for secondary pupils.

For each observed interaction, the coding system provided the identity of the pupil, the initiator of the contact (teacher or pupil), and the sequence of the interaction. Public (e.g., class discussion) and private (e.g., individual seatwork) interactions were distinguished as were the types of teacher questions, the quality of pupil responses, and the nature of teacher feedback. Teacher behavior directed toward the class as a whole or a group of pupils was not coded. The system permited separation of differences in the quantity and quality of interaction due to the teacher from those differences due primarily to the pupils.

Satisfactory inter-coder agreement (80 percent) was established, and a total of four hours of teacher-pupil interaction was coded in each class.

Results

Several measures of the frequency and nature of teacher-pupil interactions were derived from the raw data, and the obtained scores were subjected to analyses of variance to assess the effects of teacher expectations, classroom, and the interaction of expectancy and class. While differential teacher-pupil interaction was observed,

evidence of systematic differences in teacher behavior with high and low ranked pupils was minimal. Overall, there were more differences in the frequency of teacher-pupil contacts than in the nature of the interactions.

Expectancy group means and F-ratios for the frequency of teacher-pupil interactions are presented in Table 3. Public interactions are those which occur in front of the entire class (e.g., teacher asks a question; pupil volunteers a unsolicited comment or question) while private interactions take place apart from the rest of the class, usually at the teacher's or pupil's desk. Teacher-afforded public interaction or response opportunities are divided into three categories: direct questions where the teacher names a pupil before asking a question; open questions where the teacher selects a volunteer to respond after asking a question; and situations were a pupil calls out an answer without being asked to respond.

As indicated in Table 3, teachers interacted more frequently with high expectancy students (highs) than with low expectancy students (lows). Teachers afforded highs more response opportunities, and highs initiated more contacts with their teachers. Since highs seem likely to volunteer or call out answers to teacher questions more often than lows, teachers might attempt to compensate by directing more questions to lows or seeking them out in private interactions. Such a possibility was not confirmed, however, as teachers asked more direct questions of

highs than lows and, with only two exceptions, teachers tended to afford more private interactions to highs than to lows. While the difference was not significant or consistent across classes, teacher-afforded interactions formed a higher proportion of total teacher-pupil contacts for highs (51.82 percent) than for lows (42.04 percent).

Table 4 displays the expectancy group means and F-ratios for each of three types of teacher question as a percent of all questions asked an individual pupil. Teacher questions were classified as opinion, product, or process according to the degree of intellectual sophistication presumably required to answer them; personal experience or opinion questions are open-ended, and there is no one right answer to such queries; product questions require simply memory or recall and usually only a brief answer; and process questions include those requiring cognitive skills beyond memory and, typically, an extended response.* Examination of Table 4 reveals almost no difference in the percentage of personal opinion questions asked between highs and lows and only a tendency for teachers to ask proportionally more process questions of highs than lows. However, there was a difference between highs and lows in the percentage of product questions asked by the teacher. Thus, while teachers directed more questions to highs, they

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*Procedural questions (e.g., Does everyone have a book? What page are we on?) were not included in the data analysis.

generally appeared not to ask them more complex questions; the obtained difference seems to be one of quantity rather than quality (substance).

Expectancy group means and F-ratios for various types of teacher feedback in pupil-initiated and teacher afforded interactions are presented in Table 5. While there was a general tendency for teachers to provide more extended and sustaining feedback to highs than to lows (i.e., to more often follow-up highs' responses and contributions), particularly in pupil-created interactions, the obtained differences were not statistically significant.

Teacher responses beyond simple affirmation and negation were classified as praise and criticism, respectively. Although there were differences among teachers in the frequency with which they provided highly positive or critical feedback, both praise and criticism were infrequent, and differences between highs and lows were negligible. Teacher responses which merely acknowledged pupil response without indicating either acceptance or rejection were classified as ambivalent; highs and lows received approximately the same proportion of ambivalent teacher feedback.

The absence of observable teacher feedback was coded as ignoring. While teachers tended to ignore the lows' responses and contributions more often than the highs', particularly when pupil-created public interactions were included, differences were not

statistically significant. Probing responses included repeating or rephrasing a question, providing a clue to the desired answer, and asking a new or follow-up question. There was a negligible difference in the precentage of probing teacher feedback with highs and lows when pupils did not correctly answer teacher questions. However, when pupil-created interactions were included, highs received probing or sustaining teacher responses twice as often as did lows. Thus, while highs and lows received approximately the same proportions of ignoring and probing teacher feedback when teachers asked the questions, the data suggest that teachers tended not to respond to or follow-up the comments and questions of lows as often as those of highs.

In both product and process teacher feedback, the teacher provided the answer to either his own or a pupil's question. Product feedback is typically brief, often consisting of only a word or phrase, whereas process feedback involves an extended, elaborate teacher response. The proportion of product and process feedback did not differ between highs and lows although highs tended to receive more process responses from the teacher, and lows tended to receive more product resonses. When teacher process feedback was analyzed according to who initiated the contact, a difference is apparent. Teachers provided highs and lows roughly equal proportions of process feedback when they asked the questions. However, in pupil-created interactions where the pupils asked questions or volunteered comments, highs received significantly

more process responses from the teacher than did lows.

Discussion

Of the various measures of teacher-pupil interaction employed in the present study, six were found to discriminate between teacher behavior with high expectation pupils (highs) and teacher behavior with low expectation pupils (lows). Obtained significant differences favored the highs and occurred primarily in the frequency of teacher-pupil contacts, including teacher-afforded interactions both public and private, direct teacher questions, and pupil-created interactions. In addition, highs were asked more product questions than lows, and highs received more extended teacher responses to their questions and comments. Differences among teachers tended to be in the degree rather than the direction of effects.

These findings generally are consistent with those of previous studies conducted with experienced teachers in junior high math, reading, and social studies classes (Mendoza et al., 1971) and in self-contained elementary classrooms (Good, 1970; Brophy and Good, 1969b; Good and Brophy, 1969) as well as a laboratory study employing student-teachers and high school pupils (Rothbart et al., 1971). Where comparable observations were made, the following areas of agreement and disagreement emerge:

1) Both the present study and the Mendoz et al. (1971) junior high study found that teachers afforded lows significantly fewer response opportunities while Brophy and Good (1969b) reported no difference in teacher-afforded interactions in elementary classrooms. All three investigations found that highs initiated significantly more interactions with their teachers than did lows. Similarly, Rothbart et al. (1971) reported that teachers tended to spend more time attending to those pupils arbitrarily designated as highs; highs also tended to participate more.

2) Highs received significantly more direct questions than did nows in Good's (1970) elementary school study as well as in the present research, and tended to receive more direct teacher questions in Brophy and Good's (1969b) elementary school study. Similar differences in the proportion of product and process questions asked highs and lows are reported in the present study and in Mendoza et al. (1971).

3) While the elementary school studies reported differential teacher feedback such as highs receiving proportionally more praise and less criticism (Brophy and Good, 1969b), highs receiving more probing feedback (Brophy and Good, 1969b), and highs being ignored less frequently (Brophy and Good, 1969b), the only significant difference at the senior high school level was that highs in the present study received more teacher process feedback in pupil-created interactions.

Comparison of results across studies reveals differences in the extent of the effects (e.g., highs were ignored less than lows but the difference was significant in only one elementary school study). In particular, qualitative differences between highs and lows were more pronounced at the elementary level whil quantitative differences between highs and lows were more apparent at the secondary level. Thus, the age or grade level of the pupils seems to have a substantial impact on the nature of teacher behavior likely to communicate differential expectations for pupil achievement. At the elementary level, teachers afforded highs and lows roughly equal response opportunities but provided highs with more and more positive and encouraging feedback. In contrast, secondary teachers afforded lows fewer response opportunities while providing less and less supportive feedback only in pupil-created interactions.

While the present study does not provide evidence of the self-fulfilling nature of differential teacher behavior with highs and lows, it seems that the observed differences in teacher behavior are likely to discriminate against pupils for whom teachers have low expectations. Lows were less frequenlty encouraged to participate in class discussion or to interact with the teacher, either directly by being called on or indirectly by receiving extended teacher feedback when they volunteered. Instead of providing lows with at least equal

attention, assistance, and support, teachers tended to neglect them. The outcomes of this study indicate ways in which teachers' behavior might communicate their expectations to the detriment of pupils for whom they have low expectations, suggesting not only further research to replicate, refine, and extend these findings, but efforts to involve classroom teachers in identifying and modifying these behavior patterns which might contribute to the fulfillment of their negative expectations.

TABLE 1

Distribution of Pupils Ranked High and Low by Ethnic Group

	Mexican-American	Black-American	Anglo-American
Highs	2	5	21
Lows	6	6	16
Total	8	11	37

TABLE 2

Distribution of Pupils Ranked
High and Low by Sex

	Male	Female
Highs	11	17
Lows	18	10
Total	29	27

TABLE 3

Frequency of Teacher-Pupil Interactions

	Group Means		F-Ratios		
	Highs	Lows	Expectancy	Class	Class x Expectancy
Teacher-Afforded	8.86	3.79	7.386**	.723	1.112
Public	5.46	1.96	5.503*	.671	1.024
Direct Questions	2.21	.82	10.254**	1.910	1.838
Private	3.04	1.82	3.374	5.154**	1.004
Pupil-Created	11.04	4.86	4.219*	.240	.699
Public	8.04	2.71	4.049	.4295	.958
Private	3.14	2.14	1.184	1.126	.430

*$p < .05$
**$p < .01$

TABLE 4

Proportion of Teacher Questions According to Level of Complexity

	Group Means		F-Ratios		
	Highs	Lows	Expectancy	Class	Class x Expectancy
Personal Opinion	22.57	22.96	.003	6.231**	.606
Product	29.~~18~~ 36	~~13.68~~ 9.96	15.810**	5.886**	3.436**
Process	29.~~36~~ 18	~~9.96~~ 13.68	3.361	.816	.289

*p < .05
**p < .01

TABLE 5

Nature of Teacher Feedback

	Group Means		F-Ratios		
	Highs	Lows	Expectancy	Class	Class x Expectancy
Praise/Total Interactions	2.14	1.18	.745	2.98*	.177
Criticism/Total Interactions	2.96	3.07	.003	3.75**	.779
Ambivalent/Public Interactions	5.32	6.14	.089	.34	.788
Ignoring/Public Interactions	5.11	13.29	2.670	1.140	.333
Ignoring/Pupil Responses to Teacher Questions	4.68	6.32	.247	1.696	1.199
Probing/Public Interactions	10.39	5.25	3.443	1.722	.749
Probing/Partially Correct, Incorrect, and "Don't Know" Pupil Responses	14.61	13.11	.042	1.742	.734
Product/Total Interactions	17.75	25.64	2.127	1.303	.669
Process/Total Interactions	30.86	20.75	3.103	1.899	1.930
Process/Teacher-Afforded Interactions	21.29	19.71	.091	7.44**	1.902
Process/Pupil-Created Interactions	29.71	14.68	5.6085*	1.63	1.532

*p < .05
**p < .01

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